

REMARKS

This is in response to the Office Action of May 11, 2010. With this amendment, claims 1-11, 13-20 and 22 are amended, claims 12 and 21 are canceled, new claims 24 and 25 are added and all pending claims 1-11, 23-20, 22 and 24-25 are presented for reconsideration and favorable action. In the Office Action, a number of errors in the claims were identified and the claims were rejected based upon the art. It is believed that the amended claims address these matters and that the objections and rejections may be withdrawn.

New independent claim 1 has been amended in order to overcome the Examiner's objections under 35 USC § 112 and in order to clarify the differences of the subject-matter of proposed new claim 1 with regard to prior art document Arnold et al.

The expression "in a housing or similar" is amended to read "in a housing" in order to overcome the Examiner's objection with regard to the wording "or similar".

Lines 4 to 6 of proposed new claim 1 are reformulated in order to specify that the spindle shaft is "connected to the hollow shaft in a manner that enables the hollow shaft to rotate and that enables the spindle shaft to advance and to actuate a brake cable". The amendment is intended to more clearly point out which are the rotating and advancing components, and the way the brake cable is actuated.

This amendment is based on the following parts of the original disclosure (reference is made to paragraphs and line numbers of the application as published on Oct. 18, 2007):

-Paragraph [0022] discloses in lines 4 and 5 that the telescopic unit contains a hollow shaft 2 and a spindle shaft 3 connected to this; paragraph [0027] describes in lines 4 to 8 that "torque is transmitted from the electric motor 8 (...) to the transmission drive wheel 2.1 permanently connected to the hollow shaft 2" and thus discloses the transmission of torque from the motor 8 to the hollow shaft 2 itself;

-further, in this place it is specified that the hollow shaft functions as a spindle nut, and it is thus clear that it is the hollow shaft that is enabled to rotate;

-further, paragraph [0027], in lines 8 to 12, discloses that an inner thread of the hollow shaft 2 meshes with an outer thread of the spindle shaft 3, whereby "an axial advancing movement is exerted on this spindle shaft 3";

-with regard to the rotation of the hollow shaft 2 and the advancing movement of spindle shaft 3, compare also Figs. 3, 5, 7, 9, 11, 13, 15 and 17, in particular the two states displayed in Figures 3 and 5;

-finally, in paragraphs [0027] and [0028], more particularly in paragraph [0028], lines 1 to 3, it is disclosed that force is exerted on the brake cable 4 via the spindle shaft 3, and the figures, e.g. Figs. 2, 3 and 5, make clear that it is the spindle shaft 3 that actuates the brake cable 4, and that the respective passage of claim 1 as currently on file is to be understood in this manner;

Lines 7 to 9 of proposed new claim 1 are modified by replacing the words "non rotating axially movable connection" by "torque-transmitting connection", and by further specifying that this connection enables the hollow shaft to move axially relative to remotely-operated drive.

-The torque-transmitting connection between the drive and the hollow shaft 2 is disclosed in paragraph [0027], lines 4 to 8, of the description, as already referred to above;

-paragraph [0028], lines 3 to 6 state that the hollow shaft is axially movable relative to the intermediate gear wheel 11, used to transmit torque from the motor to the hollow shaft;

-paragraph [0022], lines 7 to 11 explicitly describe that the "(...) electric motor 8 (...) drives a transmission gear wheel 2.1 which can be moved axially to it and is connected in a fixed manner to the hollow shaft 2 (...)".

Thus it is believed that proposed new claim 1 clearly points out the nature of the connection between the, drive and the hollow shaft, too.

With regard to the subclaims, the dependency of currently pending claim 2 has been amended and has the introductory expression of each dependent claim to read "The setting device", as required by the Examiner.

Regarding pending dependent claim 4, it has been amended by canceling the words "an axial movement option between" and inserting an expression which specifies that the intermediate gear wheel and the meshing drive gear wheel of the hollow shaft are enabled to move axially relative to each other.

Again, the basis for this amendment is found in paragraph [0028], lines 3 to 6 of the specification. In this manner, it should be made sufficiently clear what actually was meant by the

original wording "axial movement option". Further, in order to overcome the Examiner's respective objection, claim 4 is amended to specify "an operational stroke distance".

Regarding the Examiner's objections concerning dependent claims 6 and 7, these claims have been split, forming two new dependent claims, encompassing the subject-matter following the expression "which can be" in pending claims 6 and 7, respectively. With regard to these claims. Two new dependent claims 24 and 25 have been added.

Concerning currently pending dependent claim 15, "~ motor vehicle parking brake" in line 6 of the amended claim is replaced by "the motor vehicle parking brake", as the embodiments described in the application relate to apply force to a single brake cable 4 for brake application and release.

With regard to the Examiner's objection to the drawings, presently pending dependent claims 12 and 21 are canceled.

Proposed new independent claim 22 has been amended in line with proposed new claim 1. Moreover, in the last paragraph of claim 22, the formulation "at least elastic element" has been amended and now reads "at least one elastic element". This is in accordance with the drawings in Figs. 1 to 3, 5, 7, 9, 11, 13, 15 and 17, for example, which show using one or more than one elastic element as described in the claim. Further, an error of type ("on" instead of "one" has been corrected).

### **Novelty and Non-Obviousness of New Independent Claims**

Novelty over Arnold et al. (US 5,180,038)

Proposed new claim 1 of the present invention relates to a setting device having a telescopic device which comprises a hollow shaft as well as a spindle shaft. These are connected such as to enable the hollow shaft to rotate and the spindle shaft to advance. By the spindle shaft, a brake cable is actuated. A torque-transmitting connection exists between the hollow shaft and a remotely-operated drive, and this connection ensures that the hollow shaft is movable with respect to the remotely-operated drive in the axial direction.

In contrast to this, document Arnold et al. describes a park break system having a main drive screw 36 which is maintained against longitudinal movement relative to an intermediate

wall of a housing, and which is furthermore supported by a bearing 32 for rotation relative to this housing (column 3, lines 51 to 55 of document Arnold et al.). As shown in Fig. 1 of this document, this main drive screw 36 is connected to a bell-shaped (hollow) member 8 such that a rotary movement of the screw causes displacement of the movable member 8 (column 3, lines 55 to 64). In column 6, lines 3 to 7 of Arnold et al., it is clearly described that the screw 36 is rotated by means of a motor which causes displacement of the hollow member 8. In this way, the movable member 8 may pull a cable 20 (column 3, lines 26 to 29 and Fig. 1, column 5, lines 60 to 64). Thus, Arnold neither discloses a spindle shaft provided such as to advance and actuate a brake cable, but rather an outer hollow member for action on such a cable. Nor does Arnold et al. disclose a torque-transmitting connection between a drive and a hollow shaft. As is evident from Fig. 1 of document Arnold et al., torque is applied there to the inner drive screw 36 and no torque will be applied to the member 8 but only axial forces. For these reasons, the subject-matter of proposed new claim 1 of the present invention is new with respect to prior art document Arnold et al., according to 35 USC § 102.

### **Non-Obviousness**

The technical problem a person having ordinary skill in the art is entrusted to solve may be considered to provide a setting device allowing actuating and releasing a brake cable which is of compact dimensions and which allows to apply and correctly measure a brake cable force regardless of the distance the brake cable has traveled.

This problem can be solved by a setting device according to new claim 1 of the present invention. The telescopic device which is provided, having a hollow shaft 2 and a spindle shaft 3, allows the tensioning of a brake cable 4 by the spindle shaft 3. Actuating the brake cable 4 is accomplished by transmitting torque from the remotely operated drive to the hollow shaft and rotating the latter, whereby the spindle shaft 3 is axially advanced. Axial forces are supported against the housing through at least one elastic element deformable in the axial direction by the axial forces. The torque-transmitting connection between the drive and the hollow shaft enables the hollow shaft to move in the axial direction correspondingly. A certain axial force applied to the brake cable thus leads to a defined shifting of the hollow shaft 2 in the axial direction, this

shifting distance being completely independent of the instantaneous position of the spindle shaft 3. The distance by which the hollow shaft is shifted can then be used as a measure for the brake force applied. Using an appropriate length of the spindle shaft 3, this spindle shaft 3 may then travel through long distances in order to tension the brake cable, without this having an influence on the principle or the precision of the force measurement.

According to the subject matter of proposed new claim 1 of the present invention, the length of the elastic element is therefore due to a relative rotary movement of two components (namely elements 2 and 3). In contrast to the device shown in document Arnold, wherein one of these components (the screw 36) is driven by a motor in order to rotate and wherein the axial movement of the other component (outer member 8) determines the length of a compression spring 30, in the case of new claim 1 of the present invention, the length of the elastic element is determined by the axial displacement of the rotating, driven component itself.

From document Arnold, a person skilled in the art can therefore not obtain any hint with regard to:

- actuating a brake cable by a spindle shaft
- additionally, providing a torque-transmitting connection between a hollow shaft and a remotely-operated drive, which would enable the hollow shaft to axially shift with respect to the drive.

Further, it is to be noted that the working principle of the device disclosed in Arnold et al. is fundamentally different from the principle of operation of the device according to new claim 1, as is described in column 2, lines 5 to 11 of Arnold et al. There, a main spring means is used for operating the parking brake cable to a brake-engaged condition, the electric motor means being employed for driving the movable member towards a brake released position. In contrast, in case of the subject-matter of new claim 1 of the present invention, the elastic element serves as an axial support to a rotating element (the hollow shaft) which is driven in rotation by means of a drive for the purpose of tensioning or releasing the brake cable.

It is further noted that in the case of document Arnold, the driven element (the screw 36) is not provided with any capability of moving in the axial direction but is rather fixedly supported in this direction by a bearing 32 which, moreover, is shown in Fig. 1 of Arnold et al. to be

provided in the form of an arrangement of tapered roller bearings which will not allow axial movement. A person having ordinary skill in the art therefore will forcibly be led away from the subject-matter of new claim 1 of the present invention.

Hence, new claim 1 fulfills the non-obviousness requirement of 35 USC § 103. Therefore, new claim 1 should be patentable.

With respect to the new claim 22, the preceding rationale can apply in like manner.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue, or comment, including the Office Action's characterizations of the art, does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment or cancellation of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment or cancellation. Applicant reserves the right to prosecute the rejection claims in further prosecution of this or related applications.

In view of the above amendments and remarks, it is believed that the present application is in condition for allowance. Consideration and favorable action are respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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